CLACKAMAS COUNTY BOARD OF COUNTY COMMISSIONERS

Policy Session Worksheet

Presentation Date: October 6, 2015 **Approx. Start Time:** 10:30am **Approx Length:** 60 min

Presentation Title: Emergency Radio System Replacement Project Proposal from C800

Department: County Administration, County Counsel, County Finance
Presenters: Laurel Butman, Chris Storey, Marc Gonzales
Other Invitees: Matt Ellington & James Rhodes, Sheriff's Office; Bob Cozzie, Mark Spross & Cheryl Bledsoe, CCOM; and John Hartsock, Leslie Taylor & Fred Charlton from C800

WHAT ACTION ARE YOU REQUESTING FROM THE BOARD?

C800 is requesting that the Board of County Commissioners consider its request that the County put a bond measure on the May 2016 ballot authorizing financing in the amount of approximately $58.7 million for the replacement of Clackamas County's portion of the Clackamas County & Washington County joint emergency radio communications system.

EXECUTIVE SUMMARY:
The existing emergency radio communications system serving Clackamas and Washington County emergency responders and other public users was built using 1990s technology and is fast approaching obsolescence. The analog components of the system are beyond the end of their useful life and any remaining vendor support for the system will cease as of December 2017. It will take approximately three years to install a replacement system.

System radio coverage is also an issue. Current coverage is insufficient to serve the area given population growth over the past 20 years and, in Clackamas County, there are specific areas that have no radio coverage: along Hwy 26 in the Mt Hood area and in South County.

In addition to end of life issues, vendors and surrounding jurisdictions are all moving from analog to digital platforms. In order to ensure continued interoperability so emergency and public safety responders can communicate with each other via voice and data, the C800 system must transition to digital. Since C800 and its Washington County counterpart, Washington County Consolidated Communications Agency (WCCCA), operate a joint system and both counties wish to make this transition together, doing so jointly will ensure a seamless, efficient, and cost effective transition.

C800 has finalized and reached concurrence on a plan for its portion of a replacement system and is at this time requesting that Clackamas County place a bond measure on the May 2016 ballot for bond financing (C800 cannot legally go out for a bond itself). A decision is not required on this matter at this time. C800's request to the Board is attached (Attachment A).

Early public opinion research indicates that a majority of the public is unaware of the state of the emergency radio system but that, after minor initial education, the potential bond measure achieves 62% support. Additionally, respondents indicated strong satisfaction with current emergency response (police, fire, EMS) services and strong support for the components of the proposed project.

FINANCIAL IMPLICATIONS (current year and ongoing):
The estimated cost of the Emergency Radio System Replacement will be $58.7 million, to be financed by a 15-year General Obligation Bond approved by County voters. Target cost per $1,000 of Assessed Value will be $0.10 or $25.00 annually for a Clackamas homeowner with a median assessed value home ($250,000). C800 will bear all the costs of public information, community surveys, etc. No funding

from the County is required and successful passage of a bond measure will reduce C800 member costs for radios in the future. The Sheriff's Office is a member of C800.

LEGAL/POLICY REQUIREMENTS:
The replacement emergency radio system will meet nationally recognized Association of Public Safety Communications Officials (APCO) interoperability standards.

PUBLIC/GOVERNMENTAL PARTICIPATION:
The 15-member C800 Board and other stakeholders have worked together to plan this project and have performed outreach to Clackamas County cities and public entities that pay into and/or use the system. Outreach from C800 to cities and others is ongoing and a letter of support from the Fire Defense Board is attached (Attachment B).

OPTIONS:

1. Acknowledge receipt of the C800 request and instruct staff to schedule an additional policy session to discuss whether to move forward on C800's request.
2. Acknowledge receipt of the C800 request and instruct staff to begin preparatory work toward placing a measure on the May 2016 ballot per C800's request.
3. Acknowledge receipt of and decline the C800 request.

RECOMMENDATION:

Staff respectfully recommends that the Board of County Commissioners approve either option #1 or option #2 to acknowledge receipt of the C800 request and instruct staff to schedule an additional policy session to discuss or to begin preparatory work on placing a measure on the May 2016 ballot per C800's request.

ATTACHMENTS:

1. Attachment A: *C800 Request of County to Place a Bond Measure on the May 2016 Ballot*
2. Attachment B: Letter of Support from the Fire Defense Board

SUBMITTED BY:
Division Director/Head Approval: _____
Department Director/Head Approval: _____
County Administrator Approval: LSB

For information on this issue or copies of attachments, please contact Laurel Butman @ 503- 655-8893.

Attachment A

C800 Request of County to Place a Bond Measure on the May 2016 Ballot

CLACKAMAS
800 RADIO
GROUP

11300 SE Fuller Rd
Milwaukie, Oregon 97222
(503) 780-4806

September 28, 2015

Clackamas County Board of Commissioners
c/o Laurel Butman
Deputy County Administrator
Clackamas County
2051 Kaen Road
Oregon City, OR 97045

Re: Request to Place a Bond Measure on the May 2016 Ballot

Ms. Butman,

The Clackamas 800 Radio Group (C800) Board of Directors respectfully requests that the Clackamas County Board of Commissioners on behalf of C800 place a Bond Measure before the voters on the May 2016 Ballot for issuance of a general obligation bond in the amount of $58,704,000. These bonds would be for the replacement of the C800 countywide emergency communication system. Bonds would mature in a period not to exceed 15 years from the date of issue and may be issued in one or more series.

The overall tax rate for the bonds is estimated to be approximately $0.10 per $1,000 of assessed property value. The average assessed or taxable value of homes in Clackamas County, per the Clackamas County Assessor, is $253,548. The projected cost of these bonds for the average homeowner would be $2.11 per month.

The C800 Board of Directors is making this request of the Commissioners to place a measure on the ballot on behalf of C800 as C800 being an ORS 190 Organization does not have taxing or bonding authority. Further, Clackamas County is the only partner agency of C800 that has countywide bonding authority.

C800 anticipates and is willing to enter into an Intergovernmental Agreement (IGA) with Clackamas County regarding this project. The IGA would spell out the roles and responsibilities of the parties as to fiscal responsibilities, purchasing, project management, insurance, maintenance and similar issues. This would be analogous to the agreement the County and C800 entered into in 2001 to initially construct the radio system.

C800 User Agencies

Lake Oswego
Communications / LOCOM
Leslie Taylor, Chair C800

Boring Fire District
Chief Fred Charlton

Canby Fire District
Chief Jim Davis

Canby Police
Chief Bret Smith

Clackamas Fire District #1
Chief Fred Charlton

Clackamas County Sheriff
Sheriff Craig Roberts

Estacada Fire District
Chief Bob Morrisey

Gladstone Police
Lt. Jeff Jolley

Gladstone Fire
Chief Stan Monte

Lake Oswego Fire
Chief Ed Wilson

Lake Oswego Police
Chief Don Johnson

Molalla Fire District
Chief Vince Stafford

Molalla Police
Chief Rod Lucich

Oregon City Police
Chief Jim Band

Sandy Fire District
Chief Phil Schneider

Sandy Police
Chief Kim Yamashita

TVFR
Chief Mike Dyke

West Linn Police
Chief Terry Timeus

American Medical Response
Ben Sorenson

Clackamas 9-1-1 Dispatch
CCOM
Bob Cozzie, Director

John Hartsock, Manager C800

C800's request of the Commissioners to place this measure on the ballot on behalf of C800 was unanimously approved at the September 9, 2015 C800 Board Meeting

Clackamas County's emergency radio system is out of date and prone to failure. This bond is the responsible way to fix the problem. This project creates an efficient, dependable communications system that works in all parts of Clackamas County.

Attached are supporting documents:

The C800 Board of Directors appreciates your support of this important project to protect the citizens we all serve.

Sincerely,

Leslie Taylor

Leslie Taylor, Chair

CLACKAMAS
800 RADIO
GROUP

11300 SE Fuller Rd
Milwaukie, Oregon 97222
(503) 780-4806

CLACKAMAS COUNTY EMERGENCY RADIO SYSTEM REPLACEMENT PROJECT

ATTACHMENT – A / PROJECT DEFINITION

September 28, 2015

Why does the Emergency Communication System need replacing?

1. *The existing emergency radio system is out dated and prone to failure*
2. *Need to transition to current open source digital technology*
3. *Need to ensure ongoing system compatibility and interoperability*
4. *Need to expand coverage to underserved and unserved populated areas*
5. *Need to respond to population growth*

Project Goals

- Timely replacement of Clackamas County's emergency radio/data infrastructure to ensure continuous service to meet first responder needs
- Maintain a system that is based on current open source digital technology and ensures compatibility and interoperability into the future
- Maintain or enhance existing service levels
- Develop a capital financing strategy that minimizes the financial burden on user agencies and reinforces public trust and confidence
- Provide fiscal and schedule oversight through a Citizen Oversight Committee in addition to the C800 Board of Directors
- This project is the reasonable way to save lives and fix the problem, creating an efficient, dependable communications system that works in all parts of Clackamas County

Project Definition

This project will construct a new P25 open source digital emergency radio system covering Clackamas County. The new system will provide equal coverage and performance to the current system while also expanding coverage and maintaining interoperability. The system will include but not be limited to:

- ✓ 800MHz two-way radio infrastructure at radio sites and master site equipment
- ✓ A microwave transport system
- ✓ Fourteen additional sites including buildings, towers, DC power systems, backup generators:
  - 5 sites to make up for the performance difference between analog and digital;
  - 6 sites for expanded coverage in the Mt Hood/Hwy 26 area and the Clackamas drainage in South County;
  - 1 site for the portable at the hip coverage;
  - 2 sites for enhanced in-building coverage;

- ✓ Application to allow SMART phone access to the system;
- ✓ Paging system replacement;
- ✓ Post-warranty support;
- ✓ Systems refresh for equipment and software upgrades
- ✓ Project management
- ✓ Dispatch Back Up
- ✓ Includes 50% of mobile and portable radios – the balance remains an agency responsibility.

Project Elements

The project also includes costs for:

- ✓ Site acquisition consulting services
- ✓ Architectural, engineering, geotechnical investigation, and other required professional services
- ✓ Land use and construction permits expenses
- ✓ Other Governmental fees
- ✓ Land acquisition through purchase and/or lease
- ✓ Reimbursement of costs incurred for the project prior to bond issuance
- ✓ Bond issuance cost and expenses

CLACKAMAS COUNTY EMERGENCY RADIO SYSTEM REPLACEMENT PROJECT

ATTACHMENT – B / PROJECT COST

September 28, 2015

Major Cost Elements of the Proposal

- Replace two-way radio infrastructure $25.7 million
- 50% of subscriber (mobile/portable) radios $5.0 million
- Add tower sites $19.3 million
- Ongoing system refresh/upgrades $2.7 million
- Project management $0.3 million
- Upgrade console equipment $1.7 million
- Miscellaneous expenses / Contingency $1.9 million
- Ensure backup dispatch $0.4 million
- Bond Issuance Cost $1.7 million

TOTAL COST **$58.7 million**

Proposal Cost Specifics

The proposed system is a Project 25 (open source) compliant 700/800MHz digital public safety grade voice and data communication system. The existing system has 10 sites. To achieve the coverage goals of the user agencies 14 sites will be added making it a 24 site system.

Project Costs		Option 4 14 added sites		**Definition**
Simulcast Equipment		$14,927,509		Cost for 208 remote site radio repeaters, associated equipment and installation at the 24 sites. Number of radios/channels per site varies to assure system capacity.
A portion of Partner/Member Radios		$5,000,000		A portion (approximately 50%) of partner and member mobile and portable radios.
Master Site Equipment		$3,534,291		Cost for system master controller and associated equipment to be located at CCOM.
System Refresh/Upgrade		$2,699,200		As with all electronics there is a constant need to periodically upgrade equipment and keep software current. This cost is to cover those expenses for a ten year period with upgrades every 2 years. This saves in excess of $250,000 in ongoing operating cost by pre-purchasing.
Microwave Backhaul		$3,367,980		Cost for microwave communication radios and associated equipment to intertie the 24 radio sites with the master controller and to the WCCCA system.
Console Equipment		$1,650,269		Cost to replace the dispatch console equipment at LOCOM and CCOM.

Backup Dispatch		$425,596		Cost to provide a transportable back up dispatch solution to be utilized for major events and incidents. Further for use if CCOM or LOCOM would have to be evacuated.
Test Equipment		$101,000		Cost for test and repair equipment.
Additional Radio Sites		$11,082,344		Cost for the construction of the 14 new radio sites including engineering, permits, site preparation, buildings, and towers
Generator/Commercial		$5,798,542		Cost for providing and installing emergency backup generators and related fuel tanks at the 14 new sites and replacing the generators at the 10 existing sites which are now 16 years old. Commercial power operates the battery chargers and HVAC systems at the radio sites. The generators operate on loss of commercial power.
48 VDC Power System		$1,064,567		Cost for providing battery power/backup systems at the 14 new sites and upgrading the current systems which are 16 years old at the 10 existing sites. The radio site repeaters operate at 48VDC to insure uninterruptable operation. The batteries can operate the site for 2 days if the commercial power and/or generators were to fail.
Site Alarms and Monitoring		$1,364,444		Cost for site intrusion alarms, video surveillance, and radio system monitoring to allow timely notification of site and system operational issues.
Spares and Related Materials		$1,230,603		Cost for spare radio equipment, spare microwave radios, and spare antennas to allow immediate response to system problems.
Contingency		$627,608		This is a reserve for unforeseen condition costs at less than 2%. The construction of the 14 sites in remote locations though well planned can run into unforeseen issues and or delays in permitting.
Project Management		$264,676		Cost for the retention of a project management consultant to provide independent oversight.
Paging		$373,248		The user agencies (primarily fire) utilize a variety of paging systems to notify personnel of routine and emergency matters. Some of the systems are common carrier, cell phone, VHF, and 800MHz. Most of the equipment is outdated and no longer supportable. This cost is to provide an 800MHz paging system to upgrade to current technologies, reduce maintenance, minimize CAD interfaces, and improve performance.

Unified PTI (mobile dev)		$188,384		This cost is for an application that can be added to a smart phone to allow the smart phone to access and utilize the public safety radio system. Though not recommended for mission critical use due to the availability and reliability of the cell networks it is an option for some administrative type functions or potentially volunteer use prior to being on scene.
Asset Management		$119,054		This cost is for a computerized asset management system to track the 1,000's of components in the system, notifying of maintenance schedules and inventory management.
Post Warranty Support		$3,104,080		This is a one-time upfront cost for extension of manufacture warranty support for the radio system. This includes: technical support / infrastructure repair – depot maintenance / advanced replacement upgrades – i.e. maintains a level of spares. *Note: In order to properly maintain the system C800/WCCCA must subscribe to this service either annually or by this pre-purchase option. This will save over $200,000 in operating costs.*
Sub-Total		$56,923,395		
Estimated cost of issuance		$1,780,932		This is the estimated cost for bond issuance including bond counsel, discounts, insurance, underwriting and the like.
Total including cost of issuance;		**$58,704,327**		

Financing Specifics

- ❒ Cost per $1,000 of Assessed Value (15-year Bond) $0.10
- ❒ Average Homeowner Cost per Year ($253,548 Assessed/Taxable Value) $25.35
- ❒ Interest on the 15-year bonds $18,906,948

CLACKAMAS COUNTY EMERGENCY RADIO SYSTEM REPLACEMENT PROJECT
ATTACHMENT – C / PROPOSED BALLOT LANGUAGE

September 28, 2015

Proposed Caption / Question / Summary – Pending Approval of County Counsel / Bond Counsel / Oregon Secretary of State

CAPTION: Bond to replace obsolete emergency communications for first responders.

QUESTION: Shall county replace obsolete emergency communications for first responders, expand coverage, by issuing $58,704,000 general obligation bond with citizen oversight? If the bonds are approved, they will be payable from taxes on property or property ownership that are not subject to the limits of sections 11 and11b, Article XI of the Oregon Constitution.

SUMMARY: If approved, this measure would fund the replacement of the emergency communications system for first responders. The bond would:

- Replace the county's existing emergency radio system that operates on technology from the early 1990s;
- Enhance coverage by adding communications towers in areas of the county that currently have none;
- Expand in-building coverage, allowing radios to properly function within large buildings like hospitals or schools;
- Replace out-of-date alert paging system used to notify firefighters and other public safety officers in an emergency;
- Acquire land for radio sites
- Refinance outstanding financing
- Projected to cost the average homeowner $2.11 per month
- Includes built-in accountability mechanisms like citizen oversight
- Pay bond issuance costs;

Bonds would mature in a period not to exceed 15 years from the date of issue and may be issued in one or more series. The overall tax rate for bonds is estimated to be approximately $.10 per $1,000 of assessed property value. Results may differ based on actual interest rates incurred and growth in assessed value.

CLACKAMAS COUNTY EMERGENCY RADIO SYSTEM REPLACEMENT PROJECT

ATTACHMENT – D / SCHEDULE

September 28, 2015

BOND ELECTION PLANNING

October 6, 2015	Transmittal & presentation of Bond Proposal to BCC in Work session.
December 2015	BCC adopt reimbursement resolution for pre-bond activities
Dec/Jan 2016	BCC to approve bond proposal and direct County Counsel to review ballot material.
January 2016	Finalize and submit "core content" for bond proposal to Oregon Secretary of State, Elections Division, for review.
January 2016	C800 convene Stakeholder meetings including all community organizations that benefit from communication project bond.
February 2016	Response back from Oregon Secretary of State's Office. C800 compete initial print runs of rack cards, pocket cards, factsheets, etc.
February 2016	Web content for bond proposal goes live.
February 2016	Briefings for personnel about presentations and restrictions on political activity.
February 2016	Develop direct mail pieces.
February 23, 2016	First day to receive ballot measure number.
February 24, 2016	File radio system project bond ballot material with Elections Office. Measure numbers assigned to bond proposal.
February, 2016	Finalize and submit direct mail pieces to Oregon Secretary of State, Elections Division, for review.
March 2016	C800 develop second voter survey instrument using core content for bond proposal and conduct survey.
March 11, 2016	Last day to file Arguments with County Elections Office supporting or opposing bond for publication in the Voters' Pamphlet. (Clackamas County will forward Arguments and other pamphlet items to the Secretary of State's Elections Division to be inserted in the state's Voters' Pamphlet.)

April 11, 2016	Target week for pre-sort vendor to drop direct mail pieces to all registered voting households in county.
April 15, 2016	Last day for voters to register for General Election.
April 16, 2016	Last day to mail state Voters' Pamphlet to voters.
April 18, 2016	First day to mail ballots to voters.
May 6, 2016	**General Election Day**

PROJECT PLANNING

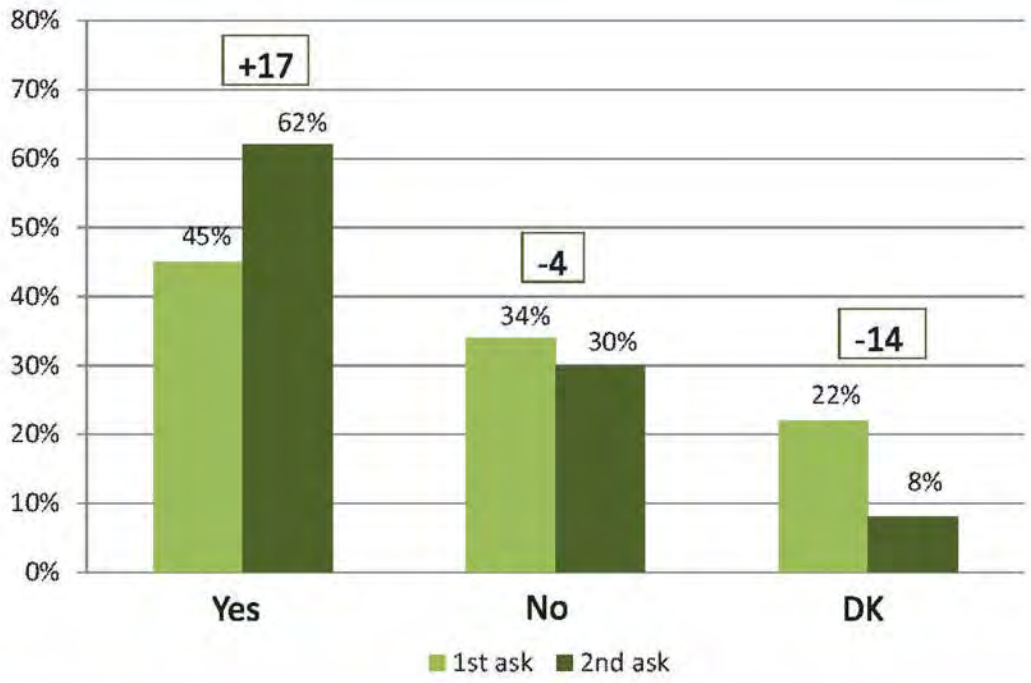
July1 2015 - March 30, 2016	Microwave Replacement for Existing Sites - Procure / Construct
Sep 1 - Nov 30, 2015	Procure a Portion of Subscriber Radios
Sep 1 - Oct 30, 2015	Retain Site Acquisition Consultant, Architect, and Engineering Team
Nov 1, 2015 - Dec 31, 2016	Site Acquisition, Design, and Permitting
Jun 1, 2016 - Nov 1, 2017	Site Construction Procurement and Construction
Nov 1, 2016 - Apr 30, 2019	Radio System Procurement and Construction
May 1, 2019 - Jul 31, 2019	System Testing and Acceptance
August 1, 2019	System Go Live

CLACKAMAS COUNTY EMERGENCY RADIO SYSTEM REPLACEMENT PROJECT

ATTACHMENT – E / POLLING

September 28, 2015

Voters move our way when given more information about the bond



"The better the explanations and reason for the measure, the more likely I would be to support it."

"We would not want something to crash and need assistance and not be able to get the help that we need. That is very scary."

Qualitative data from June 2015 QualBoard

Let me tell you a little bit more about this bond measure: This bond will replace the radio system that sheriff's deputies, police, firefighters, and EMTs, use to communicate with 9-1-1 dispatchers in an emergency. On any given day, this communication system has over 40 thousand transmissions to and between emergency responders. Yet it runs on technology from the early 1990s, has many components that are no longer manufactured, and a technical support system that will be completely phased out by 2017. Given its age, if any critical component suddenly stops working, the entire radio system could suffer a critical failure, so while residents could still call 911 and speak to someone, the dispatcher would have no reliable way to contact and send emergency responders to where they are needed.

CLACKAMAS COUNTY EMERGENCY RADIO SYSTEM REPLACEMENT PROJECT

ATTACHMENT – F / OTHER JURISDICTIONS

September 28, 2015

Other Tax / Bond Measures Projections

		2015	2016	2017	
Clackamas County			**Nov**		Public Safety Levy
City of Canby			NO		
City of Damascus			NO		
City of Estacada			NO		
City of Gladstone			NO		
City of Happy Valley			NO		
City of Lake Oswego			NO		
City of Milwaukie			?		
City of Molalla			**May**		Possible Street Fee
City of Oregon City			**Nov**		Police Bond
City of Sandy			NO		
City of Wilsonville			NO		
Canby Fire District		Nov	**(May)**		Local Option Levy
Clackamas Fire Dist #1 / Boring Fire District			NO		
Colton Fire			NO		
Estacada Fire District			NO	**May**	Bond
Hoodland Fire			NO		
Molalla Fire District			NO		
Sandy Fire District			NO		
TVF&R			NO		
Canby School District			NO		
Colton School District			NO		
Estacada School District			**May**		Possible Bond Issue
Gladstone School District			NO		
Lake Oswego School District			**Nov**		Bond
Molalla School District			NO		
North Clackamas School District			**Nov**	**(May)**	Bond
Oregon City School District			NO		
Oregon Trail School District			NO		
West Linn/Wilsonville School District			NO		
CC Community College			NO		
Mt Hood Community College			**May**		Bond
North Clackamas Parks			?		
Canby Parks			?		
Metro			?		

CLACKAMAS COUNTY EMERGENCY RADIO SYSTEM REPLACEMENT PROJECT
ATTACHMENT – G / FREQUENTLY ASKED QUESTIONS

September 28, 2015

1. **Why does the Clackamas County Emergency Radio System need replacing?**

   There are 5 primary reasons why the communication system requires replacement:

   a) **End of Life** – The existing analog radio system components are already beyond their end of life/end of support or will become unsupported by the vendors as of December 2017 or the "End of Life". (See question #2 below for additional information.)

   b) **Transition to Digital Technology** - Whether its smart phones, TV's, or public safety radios the industry and the technology they invent and market has converted to digital. In order to meet nationally recognized APCO (Association of Public Safety Communication Officers) interoperable standards for Public Safety Communications, the future, and current equipment is all based upon current digital technologies.

   c) **Interoperability** – The ability of public safety responders to share information via voice and data communications systems, on demand, in real time, when needed, and as authorized. See question # 7 below for additional information.

   d) **Population Growth** - With the population growth over the last 20 years in Clackamas County, additional radio coverage is required.

   e) **System Coverage** - The existing communication system has limited coverage or service along Hwy 26 in the Mt Hood area and up the Clackamas drainage from Estacada south. Further "in building" radio coverage to key buildings like schools, hospitals, retail centers, and large office buildings must be improved.

2. **What do we mean by "End of life"**?

   The existing analog radio system is early 1990's technology and the components have either become or will become unsupported by the vendors as of December 2017. "Unsupported" means that replacement parts will be increasingly difficult to find due to the manufacturer's no longer supporting the product lines and the diminished availability of refurbished parts. The radio vendor no longer can guarantee that the existing analog radio system can be repaired when an unsupported component or assembly fail. In addition, many of the engineers and system technology experts in the radio industry are either focused on newer digital technology or have retired. The ability to find knowledgeable individuals to support the existing analog radio system is becoming increasingly difficult.

   The current system has experienced an increasing number of system component failures that have only been mitigated due to the tenacity of the technicians. These failures have forced the technicians to search on-line auction sites and third-party vendors in efforts to obtain replacement parts or cannibalize other system parts or borrow parts from neighboring public safety jurisdictions. A failure in one of the major components would severely impact the overall operation of the public safety radio system, limit system usage in terms of availability, and

reduce or eliminate coverage in much of the geographical area now served. Replacement of key components with the new technology would take considerable time, disabling the system for as much as 6 months with an emergency purchase in place. It should be noted that this would be a very expensive upgrade/replacement as it will be unplanned and unscheduled. This would also jeopardize the ability of emergency responders to communicate efficiently, effectively, and - ultimately – field unit and citizen safety. A failure during a major incident or disaster like the Clackamas Town Center shooting would severely limit live saving communications.

3. **Who does the communications system serve?**

   The communication system serves the majority of law enforcement and fire/EMS agencies in Clackamas County. The replacement system will allow all agencies countywide to utilize the same system.

4. **Who else does the system serve beyond public safety?**

   The system also serves various public works departments, schools, Hospitals, Ambulance and EMT services and other public users to ensure coordinated voice and data communications (interoperability).

5. **Were other types of technologies looked at besides digital two-way radios**?

   Yes, many systems were considered, among them fiber optics, satellite phones, ham radios, cell phones and Terrestrial Trunked Radio (TETRA), the system widely used in Europe but not in North America. These systems were excluded for a variety of reasons; the most common being high cost, instability under stress and the inability to give priority to emergency service providers.

6. **What other agencies have made this upgrade to digital and how did they fund it**?

   Other Digital systems that have been or are in the process of upgrading in nearby jurisdictions:

   Oregon:
   - City of Portland – Bonds
   - Frontier (Gilliam/Sherman/Wheeler) - Operating Funds / Tax wind farm revenue
   - Lane County - Bond
   - Benton County - Bond
   - Linn County - Bond
   - TriMet – Bond
   - Rogue Valley Transit - Bond
   - Salem (RFP) - TBD
   - Deschutes County (RFP) - TBD
   - ODOT / OSP - Legislature

   Washington State:
   - Washington State Patrol – Operating Funds
   - Peirce County - Bond
   - Peirce County Transit - Bond
   - Tacoma - Bond
   - King County – Bond
   - Port of Seattle - Bond
   - City of Seattle - Bond
   - City of Spokane – Bond

   Idaho
   - Ada County (City of Boise) – Bond
   - Idaho State Patrol - Bond
   - Kootenai County - TBD
   - Bond Canyon County - Bond

7. **What is interoperability?**

   The ability of public safety responders to share information via voice and data communications systems, on demand, in real time, when needed, and as authorized. Public safety communications can occur only when the communications paths (frequencies, equipment and signaling) are compatible. Interoperability is an important issue for law enforcement, firefighting, EMS, and other public health and safety departments, because first responders need

to be able to communicate with one another during wide-scale emergencies. C800 first responders do this many times per month with joint responses to fires and traffic pursuits among other things.

This all became evident during the Sep. 11, 2001 attacks and multiple other disasters, many agencies cannot exchange information because they operate widely disparate hardware that is incompatible. The State and Federal governments post September 2001 require all public safety entities to have interoperability. The current systems are not capable of this.

8. **Will the new radio system be interoperable?**

   Interoperability depends on agreements between jurisdictions about how they will communicate and operate together. C800 has current agreements and will be entering into additional ones to insure interoperability with adjacent systems such as: Washington County / City of Portland/Multnomah County; Clark County Washington; Columbia County; Marian County; Yamhill County; Hood River County; Oregon State Police and ODOT; FBI and other federal agencies.

9. **How many radio sites are there?**

   There are 10 existing sites in Clackamas County and 14 new sites will be added.

10. **How many police / fire / EMS radios are there?**

    Clackamas County public safety users have 4,025 portable, mobile, and data radios.

11. **Who are WCCCA and C800?**

    The Washington County Consolidated Communication Agency (WCCCA), and the Clackamas 800 Radio Group (C800), both ORS 190 organizations (Government Joint Ventures); each owns and operates the public safety communications system serving their respective counties. The WCCCA/C800 partnership is comprised of all the public safety providers within Washington and Clackamas counties with the exception of the City of Milwaukie, Hoodland RFPD, and Colton RFPD. Its mission is to provide public safety radio and data communications for the member agencies. WCCCA and C800 formed a partnership to combine the systems for greater efficiencies and interoperability of public safety communications. WCCCA manages and maintains the combined system.

12. **Who will manage and maintain the new upgraded system?**

    When the radio project is complete, the new system will be managed by WCCCA Technical Services who currently manages and maintains the system.

13. **If we wait, won't the technology get less expensive as more jurisdictions will have implemented replacements?**

    This premise certainly has proven to be true within some technology fields – a smart phone is introduced with a $500 to $800 price tag and 2 years later it's sold for $50. With few exceptions, Smart Phones are subsidize by a contract with the service provider that has amortized the difference between the handset cost and the consumer price in the monthly contract costs. Once the customer has paid that subsidy off the amount previously used to pay off subsidy is now 100% profit to the cellular provider. This is not a model that fits Public Safety.

    Unfortunately public safety communications equipment has a limited market and this condition does not happen. There is some reduction in price from initial introduction to actual production runs but that has already happened to this equipment. We do, however, see significant discounts when large quantities are ordered at one time with portable and mobile radios. This project is

for infrastructure equipment however and unless radios are coupled with the infrastructure substantial discounts are very unlikely… especially in low volumes.

14. If we wait, won't the federal government come to the rescue?

Unfortunately, no. The existing system has been able to utilize over $5M in federal grants but the bulk of those opportunities are no longer available. The Federal and State Homeland Security grants are still sometimes available but are in small denominations and have generally been awarded to multiple jurisdictions for equity versus a large infrastructure project. Most often these have been in the form of matching funds not fully funded federal initiatives.

15. If we don't upgrade in a timely manner, what would happen?

The equipment in our infrastructure ranges from 4 to 20 years old. Most of this equipment has reached or is rapidly reaching **end of life** and/or **end of support**. The manufactures have generally set December of 2017 as a final date. As it will take up to 3 years to select suppliers, construct new communications sites, and install new equipment we are most likely to be at a risk of non-recoverable failures well into our new system construction cycle. The longer we delay the longer we remain at a level of increasing risk of catastrophic failure. As our equipment moves beyond end of life and/or end of support our ability to maintain and or replace this equipment becomes difficult and potentially impossible. The following is a report of a recent failure on the Portland system that is of the same vintage system and equipment that the City is in the process of replacing.

> *PORTLAND, Ore. (KOIN 6 April 17, 2015) – For several hours Thursday, emergency responders throughout Multnomah County were operating on backup systems after experiencing a "radio system failure," city officials confirmed.*
> *"We really couldn't communicate with each other,"*
>
> *Gresham police responded to the radio failure by having all patrol officers return to the station where they were partnered up. The department only responded to high priority calls and told officers not to "self-generate" calls,*
>
> *Portland Fire & Rescue spokesperson said during the radio failure, all units were "recalled to their respective stations unless they were out on calls." He said non-essential radio traffic was limited, and the fire bureau used backup radio channels as needed.*
>
> *Communications Manager, Kelly Ball, said "the current radio system is made up of aging infrastructure and we have been working on a radio system replacement and upgrade project since 2011. This new system will build in redundancies to reduce the likelihood of system failures. The replacement project began when a $50 million dollar bond measure passed in 2011. Motorola signed a contract to begin replacement in 2013 and the work is about 50% complete. The system is scheduled to be fully operational by June 2016."*

Our system is experiencing an ever increasing number of operational issues or failures due to age in one form or another. WCCCA's technical staff has fortunately been able to respond quickly and avert the same kind of outage Portland suffered. As they say "it's only a matter of time" however.

We have experienced the same kind of failures but have been able to respond to them quickly to reduce the impact. We have had 3 Central Site Controller related outages since August of this year. Fortunately for C800 the impact has been to WCCCA users thus far.

Failure of end of life and/or end of support equipment will more than likely be unrecoverable and then require a large, unplanned expenditure and extended delays to restore service that might be as long as 6 months or more.

Communications Technology continues to evolve towards an Open Standards architecture (P25). This allows for multi-supplier compatibility as these Open Standards are embraced. This is driving down radio costs to some degree but meeting public safety standards demand higher costs.

As adjacent cities (Portland / Vancouver), counties, and states and the federal government adopt these new technologies and transition to digital, our ability to communicate with them will be reduced or eliminated. Where today we have a model of interoperability in the Portland metropolitan region, i.e. we easily talk between systems, as Portland and Clark County, Washington transition to digital we will lose that ability for our first responders to interoperate as they do daily today.

16. **Communication System Reliability:**

The reliability of mission-critical public safety communications infrastructure during day-to-day public safety operations and during man-made and natural disasters is crucial to saving lives and property and to protecting the public during an emergency. The public safety communications infrastructure of Clackamas County is rapidly aging, outdated and at severe risk of failure. Further it requires extensive maintenance to support continuing functionality and to accommodate evolving technology;

The adopted Interoperable policies and standards by the Federal Communications Commission and the State of Oregon along with an aging infrastructure require replacement of the countywide public safety communications infrastructure. The deteriorating condition of our public safety communications systems is of continuing concern because it is critical to the safety and well-being of the residents of Clackamas County who depend upon lifesaving communications systems used by first responders. It is in the public interest of the citizens of Clackamas County to plan for improvement of the public safety communications infrastructure to ensure long-term stability and functionality as communications systems technology evolves.

Attachment B

Letter of Support from the Fire Defense Board

CLACKAMAS DISTRICT FIRE DEFENSE BOARD

11300 SE Fuller Rd. Milwaukie, OR 97222

Clackamas County Board of Commissions
Public Services Building
2051 Kaen Road
Oregon City, OR 97045

September 23, 2015

Clackamas County Board of Commissioners;

On September 10, 2015 the Clackamas District Fire Defense Board voted unanimously to support the C800 radio system replacement and request that the Clackamas County Board of Commissioners place the proposed Bond Measure on the May 2016 Primary Ballot.

Knowing that the Clackamas County emergency radio system is no longer supported by the vendor and is becoming increasing unreliable this Bond Measure is the right thing to do. Public safety agencies in Clackamas County need a reliable communications system to efficiently and safely provide service to our communities.

The proposed radio system would enhance coverage with additional towers in areas currently without public safety grade communications. The new system would also provide for more in-building coverage making operations in many large buildings safer without having to monitor additional radios, which could lead to missed transmissions.

Thank you for your consideration of this important project. A reliable public safety communications system is a critical issue that the citizens of Clackamas County should have a chance to vote on.

Sincerely,

Larry D. Goff

Larry D. Goff
Clackamas District Fire Defense Board Chief